WHAT IS CLAIMED IS:

1. A circuit for dynamically adjusting the maximum charge time ("MCT") of a battery charger, comprising:

a current regulation loop operable to regulate charging current to a battery under charge;

a voltage regulation loop operable to sense the voltage across a battery under charge;

a timing circuit being responsively coupled to the current regulation loop and the voltage regulation loop;

a dynamic MCT implementation circuit responsively coupled to the timing circuit operable to adjust the rate of the timing circuit in response to varying charging operation parameters;

a termination circuit being responsively coupled to the dynamic MCT implementation circuit;

the dynamic MCT implementation circuit and timing circuit being operable to dynamically adjust the maximum charge time based on varying charging operation parameters; and

the termination circuit operable to terminate the application of current to a battery under charge upon the occurrence of a maximum charge time.

2. The circuit for dynamically adjusting the maximum charge time of a battery charger of Claim 1, wherein variable power dissipation and the voltage across the battery under charge operates to adjust the maximum charge time.

3. The circuit for dynamically adjusting the maximum charge time of a battery charger of Claim 1, wherein the dynamic MCT implementation circuit and timing circuit are operable to

dynamically adjust the maximum charge time based on temperature parameters of one or a plurality of transistors used to regulate charging current to the battery under charge.

4. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 1, wherein the maximum charge time is a function of the charging current.

5. The circuit for dynamically adjusting the maximum charge time of a battery charger of Claim 4, wherein maximum charge time is increased during low current and decreased during high current.

6. The circuit for dynamically adjusting the maximum charge time of a battery charger of Claim 1, wherein the dynamic MCT implementation circuit and timing circuit further comprises:

a first transistor;

a second transistor of opposite polarity from the first transistor;

the current regulation loop being responsively coupled to the gates of the first and second transistors;

an differential amplifier;

the drains of the first and second transistors being coupled to a first input of the differential amplifier;

the second input of the differential amplifier being coupled to a reference voltage;

a third transistor;

the output of the differential amplifier being responsively coupled to the gate of the third transistor;

an oscillator operable to accept a signal at its input;

a clock divider circuit operable to accept a signal at its input from the oscillator; and

the third transistor being responsively coupled to the input of the oscillator.

7. The dynamic MCT implementation circuit and timing circuit of Claim 6 further comprising the oscillator being a temperature controlled oscillator.

8. The dynamic MCT implementation circuit and timing circuit of Claim 6 further comprising the oscillator being a voltage controlled oscillator.

9. The dynamic MCT implementation circuit and timing circuit of Claim 6 further comprising the output of the clock divider circuit transitioning from a first state to a second state upon reaching maximum charge time.

10. The dynamic MCT implementation circuit and timing circuit of Claim 6 being operable to adjust the maximum charge time parameter of a battery charging circuit as a function of the temperature of one or a plurality of transistors used to control current to the battery under charge.

11. The dynamic MCT implementation circuit and timing circuit of Claim 6 being operable to adjust the maximum charge time parameter of a battery charging circuit as a function of current to the battery under charge.

12. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 6 wherein the first, second and third transistors comprise MOS transistors.

13. The dynamic MCT implementation circuit and timing circuit of Claim 6 further comprising the oscillator being a current controlled oscillator.

14. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 13, wherein the current controlled oscillator and clock divider circuit are operable to output a disable signal upon reaching maximum charge time.

15. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 14, wherein the current applied to the current controlled oscillator is proportional to battery charging current.

16. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 14, wherein maximum charge time is the time integral of the current controlled oscillator.

17. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 14, wherein the output of the clock divider circuit is operable to disable the charging current.

18. The circuit for dynamically adjusting the maximum charge time of a battery charger, of Claim 14, wherein the dynamic MCT implementation circuit and timing circuit are operable to dynamically adjust the maximum charge time based on temperature parameters of one or a plurality of transistors used to regulate charging current to the battery under charge.

19. A circuit for sensing current and temperature levels of a power transistor and in response thereto controlling and terminating current to a load coupled to the power transistor, comprising:

a current regulation circuit being responsively coupled to a load;

a dynamic maximum charge time circuit being responsively coupled to the current regulation circuit;

a termination circuit for terminating current to the load upon the occurrence of a maximum charge time event;

the termination circuit being responsively coupled to the dynamic maximum charge time circuit; and

the dynamic maximum charge time circuit being operable to adjust the timing of the maximum charge time event based on power dissipation and load parameters.

20. The circuit for sensing current and temperature levels of a power transistor and controlling current to a load coupled to the power transistor of Claim 19, wherein the load comprises a battery.

21. The circuit for sensing current and temperature levels of a power transistor and controlling current to a load coupled to the power transistor of Claim 19, further comprising increasing maximum charge time during low current and decreasing maximum charge time during high current.

22. The circuit for sensing current and temperature levels of a power transistor and controlling current to a load coupled to the power transistor of Claim 19, further comprising the dynamic maximum charge time circuit operable to dynamically adjust the maximum charge time based on temperature parameters of one or a plurality of transistors used to regulate charging current to the battery under charge.

23. A battery charger circuit with a first circuit for enabling the application of current to a battery, a second circuit for sensing the voltage across the battery, and a third circuit for regulating and terminating the charging current to the battery, comprising a dynamic MCT circuit operable to adjust the maximum charge time during which charging current is applied to a battery.

24. The battery charger circuit of Claim 23, further comprising a termination circuit operable to terminate the application of current to the battery upon occurrence of maximum charge time as enabled by the dynamic MCT circuit.

25. A circuit for dynamically adjusting current to a load, comprising:

a current regulation loop operable to regulate current to a load;

a voltage regulation loop operable to sense the voltage across the load;

a timing circuit being responsively coupled to the current regulation loop and the voltage regulation loop;

a dynamic MCT implementation circuit responsively coupled to the timing circuit operable to adjust the rate of the timing circuit in response to varying load parameters;

a termination circuit being responsively coupled to the dynamic MCT implementation circuit;

the dynamic MCT implementation circuit and timing circuit being operable to dynamically adjust the current to a load based on varying parameters; and

the termination circuit operable to terminate the application of current to a load upon the occurrence of a maximum charge time.

26. The circuit for dynamically adjusting the current to a load of Claim 25, wherein variable power dissipation and the voltage across the load operates to adjust the maximum charge time.

27. The circuit for dynamically adjusting the current to a load of Claim 25, wherein the dynamic MCT implementation circuit and timing circuit are operable to dynamically adjust the current to a load based on temperature parameters of one or a plurality of devices or transistors used to regulate current to the load.

28. The circuit for dynamically adjusting the current to a load of Claim 25, wherein the maximum charge time is a function of the charging current.

29. The circuit for dynamically adjusting the current to a load of Claim 28, wherein maximum charge time is increased during low current to the load and decreased during high current to the load.

30. The circuit for dynamically adjusting the current to a load of Claim 25, wherein the dynamic MCT implementation circuit and timing circuit further comprises:

a first transistor;

a second transistor of opposite polarity from the first transistor;

the current regulation loop being responsively coupled to the gates of the first and second transistors;

an differential amplifier;

the drains of the first and second transistors being coupled to a first input of the differential amplifier;

the second input of the differential amplifier being coupled to a reference voltage;

a third transistor;

the output of the differential amplifier being responsively coupled to the gate of the third transistor;

an oscillator operable to accept a signal at its input;

a clock divider circuit operable to accept a signal at its input from the oscillator; and

the third transistor being responsively coupled to the input of the oscillator.

31. A circuit for dynamically adjusting current to a load based on the temperature of devices within the circuit, comprising:

a current regulation loop operable to regulate current to a load as a function of the temperature of devices within the circuit;

a voltage regulation loop operable to sense the voltage across the load as a function of the temperature of devices within the circuit;

a timing circuit being responsively coupled to the current regulation loop and the voltage regulation loop;

a dynamic MCT implementation circuit responsively coupled to the timing circuit operable to adjust the rate of the timing circuit in response to varying load parameters which are a function of the temperature of devices within the circuit;

a termination circuit being responsively coupled to the dynamic MCT implementation circuit;

the dynamic MCT implementation circuit and timing circuit being operable to dynamically adjust the current to a load based on varying parameters which are a function of the temperature of devices within the circuit; and

the termination circuit operable to terminate the application of current to a load upon the occurrence of a maximum charge time.

32. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein the devices comprise power transistors.

33. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein variable power dissipation of the devices and the voltage across the load operates to adjust the maximum charge time.

34. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein the dynamic MCT implementation circuit and timing circuit are operable to dynamically adjust the current to a load based on temperature parameters of one or a plurality of devices or transistors used to regulate current to the load.

35. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein the maximum charge time is a function of the charging current.

36. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein maximum charge time is increased during low

current to the load and low device temperature and decreased during high current to the load and high device temperature.

37. The circuit for dynamically adjusting the current to a load based on the temperature of devices within the circuit of Claim 31, wherein the dynamic MCT implementation circuit and timing circuit further comprises:

a first transistor;

a second transistor of opposite polarity from the first transistor;

the current regulation loop being responsively coupled to the gates of the first and second transistors;

an differential amplifier;

the drains of the first and second transistors being coupled to a first input of the differential amplifier;

the second input of the differential amplifier being coupled to a reference voltage;

a third transistor;

the output of the differential amplifier being responsively coupled to the gate of the third transistor;

an oscillator operable to accept a signal at its input;

a clock divider circuit operable to accept a signal at its input from the oscillator; and

the third transistor being responsively coupled to the input of the oscillator.

38. A method of controlling a current to a load, comprising:

dynamically adjusting current based on operating parameters;

contemporaneously therewith, adjusting the parameter of maximum charge time; and

terminating current to a load upon the occurrence of maximum charge time.

39. The method of controlling a current to a load of Claim 38, further comprising:

the load comprising a battery under charge; and

the operating parameters being the status of the battery under charge.

40. The method of controlling a current to a load of Claim 38, further comprising:

the operating parameters being the temperature of devices within the circuit controlling the current to the load.

41. A method of controlling current to a battery under charge, comprising:

dynamically adjusting current based on battery charging parameters;

contemporaneously therewith, adjusting the parameter of maximum charge time; and

terminating current to the battery under charge upon the occurrence of maximum charge time.

42. The method of controlling current to a battery under charge of Claim 41, further comprising:

determining the maximum charge time based upon power dissipation parameters.

43. The method of controlling current to a battery under charge of Claim 41, further comprising determining the maximum charge time based upon battery voltage parameters.

44. The method of controlling current to a battery under charge of Claim 41, further comprising determining the maximum charge time based upon the temperature of the circuit.

45. The method of controlling current to a battery under charge of Claim 41, further comprising increasing MCT during low current and decreasing MCT during high current.

46. The method of controlling current to a battery under charge of Claim 41, further comprising determining the maximum charge time based upon battery current parameters.